NLP_DATS_6312_10 Group 7

Project Proposal: Customer Complaint Analysis and Resolution Prediction System

Objective: Build a system that identifies and categorizes customer complaints and predicts the best resolution strategy, potentially reducing customer churn and improving satisfaction.

Key Features:

Complaint Categorization: Use NLP to classify complaints into categories like "product defect," "delivery issue," "billing problem," etc. Fine-tune a transformer-based model or use unsupervised clustering for categorization.

Sentiment and Urgency Detection: Incorporate sentiment analysis to determine the emotional tone (e.g., angry, disappointed) and urgency of each complaint, helping prioritize responses.

Resolution Prediction: Analyze past complaint resolutions and build a model to suggest resolution steps, such as refund, replacement, or escalation to a higher support tier.

Trend Analysis and Insights: Provide insights into recurring complaints by category or product type, helping companies preemptively address issues.

Technical Details:

Data Sources: https://www.consumerfinance.gov/data-research/consumer-complaints/

Modeling Techniques: Use a mix of topic modeling (like LDA or BERTopic), sentiment analysis, and recommendation systems to suggest resolutions.

Deployment: Build a Streamlit dashboard to visualize complaint categories, urgency levels, sentiment trends, and common resolutions.